



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification: <b>G06F 15/26</b>	A1	(11) International Publication Number: <b>WO 00/34886</b> (43) International Publication Date: <b>15 June 2000 (15.06.2000)</b>
(21) International Application Number: <b>PCT/US99/28579</b>		Published
(22) International Filing Date: 03 December 1999 (03.12.1999)		
(30) Priority Data: 09/205,824 04 December 1998 (04.12.1998) US		
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(54) Title: DYNAMIC QUALITY CONTROL CONDITIONAL PURCHASE OFFER (CPO) MANAGEMENT SYSTEM  
 (54) Titre: SYSTEME DE GESTION D'OFFRES D'ACHAT CONDITIONNELLES (CPO) AVEC CONTROLE DYNAMIQUE DE QUALITE

## (57) Abstract

A dynamic quality control conditional purchase offer (CPO) management system (100) is disclosed for processing CPOs received from one or more buyers (110) for a product. The dynamic quality control CPO management system (100) processes each received CPO to determine whether one or more sellers (130) are willing to accept a given CPO. The dynamic quality control CPO management system (100) initially evaluates received CPOs to identify CPOs which are not statistically likely to be accepted by sellers. If a received CPO is statistically likely to be accepted, the dynamic quality control CPO management system (100) can submit the CPO for further consideration by sellers (130) to determine if any seller actually accepts the CPO, or provisionally accepts the CPO. If a received CPO is statistically likely to be rejected, the dynamic quality control CPO management system (100) can (i) instantly reject the CPO, (ii) encourage the buyer to modify the CPO, so that the modified CPO is more likely to be accepted by a seller, or (iii) subsidize the CPO in order to make it more likely to be accepted. A historical conditional purchase offer database is used to track and store information on CPOs that have been previously processed by the dynamic quality control CPO management system (100).

## (57) Abrégé

La présente invention concerne un système de gestion d'offres d'achat conditionnelles (CPO) avec contrôle dynamique de qualité (100) traitant les CPO émises par un ou plusieurs acheteurs (110) en faveur d'un produit. Le système de gestion de CPO avec contrôle dynamique de qualité (100) traite chaque CPO reçue pour déterminer si un ou plusieurs vendeurs (130) sont disposés à accepter une CPO donnée. Le système de gestion de CPO avec contrôle dynamique de qualité (100) évalue initialement les CPO reçues pour identifier celles qui ne sont pas statistiquement susceptibles d'être acceptées par les vendeurs. Si une CPO reçue est statistiquement susceptible d'être acceptée, le système de gestion de CPO avec contrôle dynamique de qualité (100) peut la soumettre à une considération ultérieure de la par les vendeurs (130), afin de déterminer si l'un d'eux accepterait éventuellement cette CPO, ou l'accepterait provisoirement. Par contre, si une CPO reçue est statistiquement susceptible d'être rejetée, le système de gestion de CPO avec contrôle dynamique de qualité (100) peut (1) instantanément rejeter la CPO, (2) inciter le vendeur à modifier la CPO, de sorte que celle-ci soit susceptible d'être acceptée par un vendeur, ou (3) subventionner la CPO pour qu'elle soit plus susceptible d'être acceptée. En l'occurrence, une base de données historique d'offres d'achat conditionnelles est utilisée pour suivre et mémoriser les informations relatives aux CPO précédemment traitées par le système de gestion de CPO avec contrôle dynamique de qualité.

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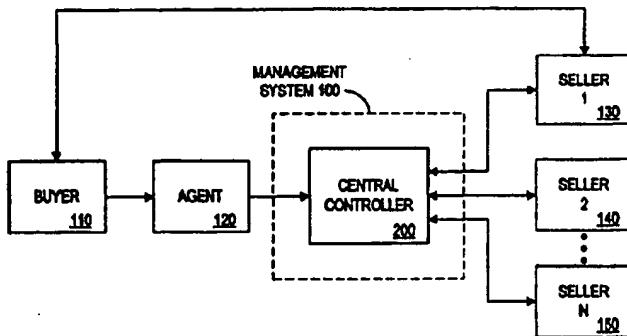
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(51) International Patent Classification 6 : <b>G06F 15/26</b>	A1	(11) International Publication Number: <b>WO 00/34886</b> (43) International Publication Date: 15 June 2000 (15.06.00)
(21) International Application Number: <b>PCT/US99/28579</b>		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(22) International Filing Date: 3 December 1999 (03.12.99)		
(30) Priority Data: 09/205,824 4 December 1998 (04.12.98) US		
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(54) Title: DYNAMIC QUALITY CONTROL CONDITIONAL PURCHASE OFFER (CPO) MANAGEMENT SYSTEM



(57) Abstract

A dynamic quality control conditional purchase offer (CPO) management system (100) is disclosed for processing CPOs received from one or more buyers (110) for a product. The dynamic quality control CPO management system (100) processes each received CPO to determine whether one or more sellers (130) are willing to accept a given CPO. The dynamic quality control CPO management system (100) initially evaluates received CPOs to identify CPOs which are not statistically likely to be accepted by sellers. If a received CPO is statistically likely to be accepted, the dynamic quality control CPO management system (100) can submit the CPO for further consideration by sellers (130) to determine if any seller actually accepts the CPO, or provisionally accepts the CPO. If a received CPO is statistically likely to be rejected, the dynamic quality control CPO management system (100) can (i) instantly reject the CPO, (ii) encourage the buyer to modify the CPO, so that the modified CPO is more likely to be accepted by a seller, or (iii) subsidize the CPO in order to make it more likely to be accepted. A historical conditional purchase offer database is used to track and store information on CPOs that have been previously processed by the dynamic quality control CPO management system (100).

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**Description**

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**DYNAMIC QUALITY CONTROL CONDITIONAL PURCHASE  
OFFER (CPO) MANAGEMENT SYSTEM**

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This application is a continuation-in-part of U.S. Patent Application Serial No. 08/943,483 filed October 03, 1997, which is a continuation-in-part of U.S. Patent Application Serial No. 08/923,683 filed September 04, 1997, and is further a continuation-in-part of U.S. Patent Application Serial No. 08/969,875, filed November 14, 1997, which is a continuation-in-part of U.S. Patent Application Serial No. 08/923,524 filed September 04, 1997, which is a continuation-in-part of U.S. Patent Application Serial No. 08/889,319, filed July 8, 1997, which is a continuation-in-part of U.S. Patent Application Serial No. 08/707,660, filed September 4, 1996, now issued U.S. patent no. 5,794,207, each of which is incorporated in its entirety by reference herein.

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**Field of the Invention**

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The present invention relates generally to a system for processing the sale of products and, more particularly, to methods and apparatus for processing the sale of products, such as airline tickets and automobiles, to buyers who have submitted a purchase offer for the purchase of such products.

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**Background of the Invention**

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Most systems for processing the sale of products are seller-driven, whereby the seller prices, packages, configures and offers the product for sale, and the buyer decides whether or not to accept the seller's offer. In a buyer-driven system, however, the buyer dictates the terms of the offer and one or more sellers decide whether or not to accept the offer. A "help wanted" advertisement, for example, is a buyer-driven inquiry since the employer is looking to locate and buy the services of a qualified employee. The inquiry is advertised to a large number of potential employees, who may respond by submitting their resumes to the prospective employer.

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Priceline.com, Incorporated of Stamford, CT is a merchant that has successfully implemented a buyer-driven system for the sale of products, such as airline tickets and automobiles. Priceline.com utilizes a Conditional Purchase Offer (CPO) Management System,

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5 described in the parent and grandparent applications to the present invention, that processes  
10 conditional purchase offers received from individual buyers. These conditional purchase offers  
15 contain one or more buyer-defined conditions for the purchase of goods or services, at a buyer-  
defined price. They are typically guaranteed by a general-purpose account, such as a debit or  
20 credit account, and thereby provide sellers with a mechanism for enforcing any agreement that  
25 may be reached with the buyer. The conditional purchase offers are provided by the CPO  
Management System to sellers, either directly or using seller-supplied rates, for individual sellers  
30 to either accept or reject. If a seller accepts a conditional purchase offer, the CPO Management  
System binds the buyer on behalf of the accepting seller, to form a legally binding contract.

10 Thus, the CPO Management System empowers individual buyers to obtain goods  
20 and services at a price set by the buyer. The CPO Management System provides numerous  
commercial advantages to sellers as well. For example, the CPO Management System permits  
individual sellers to effectively sell excess capacity when actual demand fails to meet forecasted  
25 demand. In particular, the CPO Management System provides an effective mechanism for  
30 sellers to be confident that if they accept a buyer's offer, the buyer will purchase the requested  
goods or services at the agreed-upon price, and not just use the information to ascertain the  
35 seller's underlying level of price flexibility, which, if known to a seller's competitors or  
customers, could impact the seller's overall revenue structure.

30 For many transactions, the CPO Management System will effectively complete  
20 transactions in this manner. Invariably, however, a percentage of buyers will submit purchase  
offers that are not acceptable to any seller, typically because the price offered by the buyer is too  
35 low. The success of the CPO Management System depends, at least in part, on its utilization by  
40 a large number of both buyers and sellers. Specifically, buyers are incented to submit  
conditional purchase offers if they know the conditional purchase offers will be reviewed by a  
45 large number of potential sellers. Sellers are incented to consider conditional purchase offers if  
50 they can expect a large number of attractive offers. In addition to being a lost business  
opportunity, unacceptable conditional purchase offers require buyers and sellers to spend time  
submitting and reviewing such conditional purchase offers. Thus, buyers and sellers alike may  
be frustrated and discouraged from utilizing the CPO Management System, if the acceptance  
rate for submitted conditional purchase offers does not meet satisfactory levels.

5           Buyers and sellers alike would benefit if unacceptable conditional purchase offers  
could be identified as early as possible in the conditional purchase offer process. If unacceptable  
10          conditional purchase offers are identified early enough, a buyer can be provided the opportunity  
to revise and resubmit the conditional purchase offer to a modified conditional purchase offer  
5            that is more likely to be accepted. In addition, buyers can avoid the frustration that accompanies  
a delayed rejection or expiration of an unacceptable conditional purchase offer. Likewise, some  
15          sellers may benefit from not having to review unacceptable conditional purchase offers.  
Consequently, a need exists for a system that reviews conditional purchase offers and identifies  
conditional purchase offers that are unlikely to be accepted.

10            

20          Summary of the Invention  
          A dynamic quality control conditional purchase offer (CPO) management system,  
hereinafter referred to as the CPO system, is disclosed for processing CPOs received from one  
or more buyers for a product. The CPO system processes each received CPO to determine  
25          whether one or more sellers are willing to accept a given CPO. As used herein, a CPO is an  
offer containing one or more conditions submitted by a buyer for the purchase of a product at a  
15          buyer-defined price.

30            According to one aspect of the invention, the CPO system initially evaluates  
received CPOs to identify those CPOs that are unlikely to be accepted by sellers. If the CPO  
20          system determines that a received CPO is statistically likely to be accepted, the CPO system can  
submit the CPO for further consideration by sellers to determine if any seller actually accepts the  
35          CPO, or the CPO system can provisionally accept the CPO itself. If the CPO system determines  
that a received CPO is statistically likely to be rejected, the CPO system can (i) instantly reject  
the CPO, (ii) encourage the buyer to modify the CPO, so that the modified CPO is more likely  
40          25          to be accepted by a seller, and/or (iii) subsidize the CPO in order to make it more likely to be  
accepted.

45            A historical conditional purchase offer database is used to track and store  
information on CPOs that have been previously processed by the CPO system. The recorded  
historical information is used to statistically determine whether a received CPO is likely to be  
30          30          accepted by a seller. The historical database stores the conditions and offer price associated

5 with processed CPOs, as well as the corresponding outcome (accepted, rejected or expired). In an alternate embodiment, historical retail pricing information is utilized to determine whether a received CPO is likely to be accepted by a seller

10 5 A more complete understanding of the present invention, as well as further features and advantages of the present invention, will be obtained by reference to the following detailed description and drawings.

15 **Brief Description of the Drawings**

10 FIG. 1 is a schematic block diagram illustrating a dynamic quality control conditional purchase offer (CPO) management system in accordance with the present invention;

20 20 FIG. 2 is a schematic block diagram of the exemplary central controller of FIG. 1;

25 15 FIG. 3 illustrates a sample table from the seller database of FIG. 2;

FIG. 4 illustrates a sample table from the buyer database of FIG. 2;

15 25 FIG. 5 illustrates a sample table from the offer database of FIG. 2;

FIG. 6 illustrates a sample table from the seller rules database of FIG. 2;

30 FIGS. 7A and 7B together comprise a flowchart describing an exemplary CPO pre-processing method implemented by the central controller of FIG. 2;

35 20 FIG. 8 is a flowchart describing an exemplary CPO evaluation process implemented by the central controller of FIG. 2; and

35 FIG. 9 is a flowchart describing an exemplary rules evaluation subroutine implemented by the central controller of FIG. 2.

40 **Detailed Description**

40 25 FIG. 1 shows a dynamic quality control conditional purchase offer (CPO) management system 100, hereinafter referred to as the CPO system 100, for receiving and processing CPOs for one or more goods or services, from one or more buyers 110 or agents 120 (on behalf of buyers 110). The CPO system 100 determines whether one or more sellers, such as sellers 130, 140, 150 are willing to accept a given CPO. As discussed further below, if a

5 seller accepts a given CPO, the CPO system 100 is operated in one embodiment to bind the buyer on behalf of the accepting seller, to form a legally binding contract.

#### CPO TERMINOLOGY

10 As used herein, the following terms are defined to mean:

5 Agency-Based Seller - A seller who has delegated authority to the dynamic quality control CPO management system operator to accept or reject a given CPO using seller-defined CPO Rules.

15 Broadcast-Based Seller - A seller who has received a CPO from the dynamic quality control CPO management system (directly or by, for example, access to an electronic 10 posting) for evaluation.

20 Conditional Purchase Offer (CPO) - An offer containing one or more conditions submitted by a buyer for the purchase of goods and/or services at a buyer-defined price.

25 Binding Conditional Purchase Offer (Binding CPO) - A binding offer containing one or more conditions submitted by a buyer for the purchase of goods and/or services at a 15 buyer-defined price. As compared to a CPO, a Binding CPO includes a payment guarantee, for example with a General Purpose Account, and authorization to debit the Account upon acceptance of the CPO.

30 Conditional Purchase Offer (CPO) Rule - A restriction defined by an Agency-Based Seller under which the operator of the dynamic quality control CPO management system 20 may act as an agent to determine whether to fill a CPO for that Agency-Based Seller.

35 CPO Management System - One or more controllers that receive and process CPOs for one or more goods or services, from one or more buyers, to determine if one or more sellers (Agency-Based or Broadcast-Based Sellers) are willing to accept a CPO.

40 General Purpose Account - Any account from which payment can be made, 25 including a credit or debit account.

45 According to a feature of the present invention, the CPO system 100 evaluates 30 received CPOs to identify CPOs which are not statistically likely to be accepted by sellers. One or more historical databases are used to track and store information on CPOs that have been previously processed by the CPO system 100. The CPO system 100 uses the recorded historical information to statistically determine whether a received CPO is likely to be accepted by a seller.

5 As discussed further below, the historical database(s) stores the conditions and offer price  
associated with processed CPOs, as well as the corresponding outcome (accepted, rejected or  
expired). Thus, as the historical offer database is updated over time with each new processed  
10 CPO, the recorded information becomes more statistically reliable. In an alternate embodiment,  
5 the historical database stores information on historical retail prices, such as historical published  
fares or a historical fare database in an airline implementation.

15 If the CPO system 100 determines that a received CPO is statistically likely to be  
accepted, the CPO system 100 can submit the CPO for further consideration by sellers to  
determine if any seller actually accepts the CPO, or the CPO system 100 can provisionally  
10 accept the CPO itself. In the event of a provisional acceptance, the operator of the CPO system  
100 takes the economic risk of guaranteeing that the offer will be accepted by a seller. If, on the  
other hand, the CPO system 100 determines that a received CPO is statistically likely to be  
20 rejected, the CPO system 100 can (i) instantly reject the CPO, (ii) encourage the buyer to  
modify the CPO, so that the modified CPO is more likely to be accepted by a seller, and/or (iii)  
25 subsidize the CPO in order to make it more likely to be accepted.

30 As shown in FIG. 1, the CPO system 100 includes a central controller 200,  
discussed further below in conjunction with FIG. 2. The CPO system 100 may provide a given  
CPO to selected sellers 130, 140, 150 based on predefined screening criteria, so that sellers only  
35 obtain CPOs that they may be interested in or are authorized to screen. Alternatively, the CPO  
system 100 may provide all CPOs to all sellers for screening.

40 As discussed further below, each buyer 110 contacts the CPO system 100, for  
example, by means of telephone, facsimile, online access (i.e. the Internet), electronic mail, in-  
person contact or through an agent, and provides the CPO system 100 with the terms of the  
45 buyer's CPO. It is noted that each buyer 110 and seller 130, 140, 150 may employ a general-  
purpose computer for communicating with the CPO system 100. The general-purpose computer  
may be comprised of a processing unit, a modem, memory means and any software required to  
communicate with the CPO system 100.

50 The CPO system 100, as well as any general-purpose computers utilized by  
buyers 110 or sellers 130, 140, 150 (collectively, the "nodes") transmit digitally encoded data

5 and other information between one another. The communication links between the nodes can comprise, for example, a cable, fiber or wireless link on which electronic signals can propagate.

#### AGENCY AND BROADCAST-BASED SELLERS

10 According to one feature of the present invention, the CPO system 100 provides  
5 an optional agency feature that permits the CPO system 100 to accept or reject a given CPO on  
behalf of certain agency-based sellers 130 who have delegated such authority to the CPO system  
100. Thus, the CPO system 100 (i) evaluates CPOs on behalf of certain agency-based sellers  
15 130 who have delegated authority to the CPO system 100 to accept or reject a given CPO, and  
(ii) permits broadcast-based sellers, such as sellers 140, 150 to evaluate CPOs independently.

10 Thus, the CPO system 100 can optionally provide one or more CPOs to each  
20 broadcast-based seller 140, 150, for the seller 140, 150 to independently determine whether or  
not to accept a given CPO. It is noted that the CPO system 100 can provide a CPO to each  
appropriate broadcast-based seller 140, 150, for example, by means of a broadcast transmission,  
or by means of posting the CPO, for example, on an electronic bulletin board or secure web site  
25 15 accessible by each broadcast-based seller 140, 150. Alternatively, the CPO system 100 can  
evaluate one or more CPOs against a number of CPO rules defined by one or more agency-  
based sellers 130, to decide on behalf of an agency-based seller 130 whether to accept or reject a  
30 given CPO. An illustrative set of CPO rules for one illustrative agency-based seller 130 is set  
forth in FIG. 6. Thus, the CPO system 100 can determine if one or more sellers 140, 150  
20 accept a given CPO by providing the CPO to each seller 140, 150 and receiving an acceptance  
or rejection, or by applying the CPO to the CPO rules to render a decision to either accept,  
35 reject or counter a CPO on behalf of a particular seller 130.

As discussed further below, a CPO rule is a set of restrictions defined by a given  
40 agency-based seller 130 under which the seller 130 is willing to accept a CPO. For a more  
25 detailed discussion of CPO rules, the manner in which they are generated, and related security  
issues, see U.S. Patent Application Serial No. 08/889,319, entitled Conditional Purchase Offer  
Management System, filed July 8, 1997, referenced herein above.

45 A CPO can optionally contain one or more buyer-defined variable or flexible  
conditions, typically specified using a range. For example, the variable condition may be a date  
30 range within which the product may be delivered by the seller. Other variable conditions might

5 include a price range, a performance range or a quality range. The seller may then choose a product to fill the buyer's flexible condition within the specified range. Such a variable condition may provide substantial assistance to the seller in filling the buyer's CPO. For example, with respect to an airline ticket, the seller may be able to meet a buyer's specified  
10 5 price if the CPO permits the seller to select a flight within a range of times or days.

15 It is desirable that in one embodiment the present invention prevents buyers from repetitively querying, or "pinging," the CPO system 100 to determine the underlying price flexibility of the sellers. Such pinging might result in potential damage to the seller's price margins and profitability. As mentioned above, a binding CPO discourages pinging by ensuring  
20 10 that if an offer is accepted, the buyer must actually purchase the product. Another method of discouraging pinging includes preventing buyers from submitting repetitive, similar offers. For example, repetitive CPOs that change only the offer price in an effort to determine price flexibility may be blocked by the system. In one embodiment, subsequent CPOs by the same buyer are accepted by the CPO system 100 only if there is some substantial change to the buyer  
25 15 specifications that would result in the purchase of an essentially different product. For example, with respect to the sale of airline tickets, subsequent CPOs may be accepted for processing only if there is a significant change in the itinerary. Yet another method for discouraging pinging is to require a payment or fee for each submission of a CPO.  
30

35 In one embodiment of the invention, seller identities are maintained anonymous within the CPO system 100 until a CPO is accepted. Such seller anonymity, by itself and in combination with the discouragement of price pinging discussed above, enables sellers to participate in the CPO process without fear of undercutting their published price structures and losing their regular customer base. For example, most retailers have published product prices, and loyal customers who willingly pay those prices. Participating in the CPO system 100  
40 25 enables a seller to discount those products, potentially below its published prices, to fill offers from buyers who might not otherwise pay published prices. With anonymity, these sellers can more freely participate in the CPO process with less fear of losing their regular customers and undercutting their published price structure.  
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50 30 FIG. 2 is a block diagram showing the architecture of an illustrative central controller 200. The central controller 200 includes certain standard hardware components, such

5 as a central processing unit (CPU) 205, a random access memory (RAM) 210, a read only  
memory (ROM) 220, a clock 225, a data storage device 230, and a communications port 240.  
10 The CPU 205 may be linked to each of the other listed elements, either by means of a shared  
data bus, or dedicated connections, as shown in FIG. 2. The communications port 240 connects  
5 the central controller 200 to each buyer 110 and seller 130 and optionally to remote credit  
processing servers. The communications port 240 may include multiple communication  
channels for simultaneously establishing a plurality of connections.

15 The ROM 220 and/or data storage device 230 are operable to store one or more  
instructions, discussed further below in conjunction with FIGS. 7 through 9, which the CPU 205  
10 is operable to retrieve, interpret and execute. For example, the ROM 220 and/or data storage  
device 230 may store processes to accomplish the transfer of required payments, charges and  
20 debits, between the sellers 130 and buyers 110. The processing of such accounting transactions  
may be secured in a conventional manner, for example, using well-known cryptographic  
techniques.

25 15 As discussed further below in conjunction with FIGS. 3 through 6, respectively,  
the data storage device 230 includes a seller database 300, a buyer database 400, an offer  
30 database 500 and a seller rules database 600. The seller database 300 stores information on each  
seller 130, 140, 150 which is registered with the CPO system 100 to sell products, i.e., goods  
and/or services to CPO buyers, including contact information. The buyer database 400 stores  
20 information on each buyer transacting business through the CPO system 100, including  
identification information and billing information, such as a credit card number or another  
35 general-purpose account identifier. The offer database 500 contains a record of each CPO  
processed by the CPO system 100, including the conditions associated with the CPO and the  
associated status. The historical information recorded in the offer database 500 is used, among  
40 25 other things, to determine whether a received CPO is likely to be accepted by a seller. The seller  
rules database 600 maintains the CPO rules for one or more agency-based sellers 130.

45 In addition, the data storage device 230 includes a CPO pre-processing method  
700, a CPO evaluation process 800 and a rules evaluation subroutine 900, discussed further  
30 below in conjunction with FIGS. 7 through 9, respectively. Generally, the CPO pre-processing  
method 700 receives each CPO from a buyer 110 and determines if the CPO is statistically likely

5 to be accepted by a seller. The CPO evaluation process 800 provides each CPO that remains  
after pre-processing to the appropriate broadcast-based sellers and evaluates each CPO against  
the appropriate rules of each agency-based seller, and determines whether any sellers 130, 140,  
10 150 accept the CPO. The rules evaluation subroutine 900 is a subroutine executed by the CPO  
15 evaluation process 800, which receives a CPO and compares the CPO against the rules of one or  
more agency-based sellers to generate a response on behalf of the sellers to the given CPO.

#### DATABASES

15 FIG. 3 illustrates an exemplary seller database 300 that stores information on  
each seller which is registered with the CPO system 100 to sell products, i.e., goods and/or  
20 services to CPO buyers. The seller database 300 maintains a plurality of records, such as  
records 305-330, each associated with a different seller. For each seller identifier listed in field  
25 340, the seller database 300 includes the corresponding seller name in field 350, as well as a  
CPO tracking number and seller account number in fields 360 and 370, respectively. It is noted  
that the seller identifier stored in field 340 may be utilized, for example, to index the offer  
15 database 500 to identify CPOs which have been accepted by the corresponding seller.

30 FIG. 4 illustrates an exemplary buyer database 400 that stores information on  
each buyer transacting business through the CPO system 100, including biographical information  
35 and billing information, such as a credit card number or another general purpose account  
identifier. The buyer database 400 maintains a plurality of records, such as records 405-415,  
40 420 each associated with a different buyer. For each buyer identifier in field 420, the buyer database  
400 includes the corresponding buyer name and address in fields 430 and 440, respectively, and  
45 credit card account number in field 450. In addition, the buyer database 400 includes the CPO  
50 tracking numbers associated with the buyer in field 460. The buyer identifier stored in field 420  
may be utilized, for example, to index a historical database (not shown) of previous purchases  
40 and CPOs associated with the buyer.

45 FIG. 5 illustrates an offer database 500 that contains a record of each CPO  
50 processed by the CPO system 100, including the subject and conditions of each CPO and the  
associated status. The offer database 500 maintains a plurality of records, such as records 505-  
525, each associated with a different CPO. For each CPO number listed in field 540, the offer  
30 database 500 includes an identifier of the buyer associated with the CPO in field 545, as well as

5 the subject and conditions of the CPO in fields 550 and 555, respectively. In addition, the offer  
database 500 may record the buyer-specified CPO price and current status in fields 565 and 575,  
respectively. The current status options recorded in field 575 include, for example, pending,  
accepted, rejected or expired. Thus, the historical offer database stores the conditions and offer  
10 price associated with processed CPOs, as well as the corresponding outcome (accepted, rejected  
or expired). The historical information recorded in the offer database 500 is used, among other  
15 things, to determine whether a received CPO is likely to be accepted by a seller.

15 FIG. 6 illustrates a seller rules database 600 that maintains the CPO rules for one  
or more agency-based sellers. The seller rules database 600 maintains a plurality of records,  
20 such as records 605-615, each associated with a different CPO rule. For each CPO rule  
identified in field 640, the seller rules database 600 identifies the corresponding seller in field  
25 645, as well as the minimum required conditions and price for a CPO to be accepted on behalf of  
the corresponding seller in fields 650 and 655, respectively.

#### PROCESSES

25 15 As discussed above, the central controller 200 can execute a CPO pre-processing  
method 700 to receive each CPO from a buyer 110 and determine if the CPO is statistically  
30 likely to be accepted by a seller. While CPOs may be binding or nonbinding in nature, the  
present embodiment is described with respect to a binding CPO. The processing of a  
35 nonbinding CPO is substantially identical, with the exception that authorization to charge the  
buyer credit card account (or another general purpose account) may be obtained after a seller  
acceptance of the CPO is identified. Alternatively, the process may be identical with the buyer  
being given the option to renege after the CPO is accepted by a seller.

40 25 As shown in FIG. 7, the CPO pre-processing method 700 initially receives a CPO  
from a buyer 110 during step 705. A test is then performed during step 710 to determine if the  
45 30 CPO is valid. For example, the test performed during step 710 may determine if the buyer has  
specified each of the relevant conditions for a given product category.

45 30 If it is determined during step 710 that the terms of the CPO are not valid, then  
the buyer is requested to retransmit the CPO during step 720 and program control returns to  
50 step 705. If, however, it is determined during step 710 that the terms of the CPO are valid, then  
an identifier of a general purpose account, such as a credit or debit card account from which

5 funds may be paid, and an authorization to charge such general purpose account, are received during step 715. In this manner, the CPO is guaranteed with a general-purpose account, for example, using a line of credit on a credit card account. Appropriate legal language is may be displayed or read to the buyer at the time the CPO is received, to form a binding CPO.

10 5 A test is then performed during step 725 to determine if the payment identifier is valid. For example, the payment identifier may be transmitted to a remote credit card server for pre-authorization or the like. If it is determined during step 725 that the payment identifier is not valid, then the buyer is requested to retransmit a different payment identifier during step 730 and program control returns to step 715. If, however, it is determined during step 725 that the 10 payment identifier is valid, then the CPO system 100 performs a further test during step 740 to determine if a similar offer exists in the offer database 500. Similar CPOs can be identified, for example, with well-known fuzzy logic techniques or with one or more thresholds that allow for a certain margin of departure from the conditions of the CPO, such as all CPOs for travel within a predefined period of time of the travel dates for a travel-related CPO.

20 15 If it is determined during step 740 that a similar offer does not exist in the offer database 500, then no historical information is available to predict the statistical likelihood of acceptance, and the CPO is processed in a conventional manner during step 780. The CPO evaluation process 800 (FIG. 8) is executed during step 780 to determine if any seller is willing to accept the CPO.

30 20 If, however, it is determined during step 740 that one or more similar offers exist in the offer database 500, then a further test is performed during step 750 to determine if the CPO is statistically likely to be accepted. In one embodiment, the similar offers identified during step 740 are reviewed during step 750 to determine whether previously processed CPOs containing similar conditions and offer prices were accepted or rejected. In a further variation, 25 40 the received CPO can be compared during step 750 against historical or published retail pricing data to determine if the received CPO is likely to be accepted. As previously indicated, the CPO system 100 prescreens the terms of each CPO to determine the likelihood that the CPO will be accepted by a seller.

45 30 If it is determined during step 750 that the CPO is likely to be accepted then program control proceeds to step 780 to determine if any seller actually accepts the CPO, in the

5 manner described above. If, however, it is determined during step 750 that the CPO is not likely to be accepted then a rejection message is transmitted to the buyer during step 760 and the offer database 500 is updated during step 765. In an alternate embodiment, the buyer is requested to transmit different CPO terms. Program control terminates during step 770.

10 5 It is noted that in addition to screening for statistical likelihood of acceptance during step 750, one or more additional or alternative filtering criteria can be applied to received CPOs before they are evaluated by or on behalf of sellers. For example, a filter can be applied to ensure that the CPO system 100 earns a sufficient margin on the CPO. In an alternate implementation, the ability to-identify offers that are statistically likely to be accepted is based on 15 10 a demand forecast, such as a central reservation system (CRS) or proprietary airline reservation systems (ARSs) of each airline in an airline implementation, as well as on historical acceptance information. The demand forecast can be based, for example, on historical or seasonal demand data, or on anticipated upcoming events or weather conditions. Thus, the thresholds utilized to 20 determine whether a CPO is statistically likely to be accepted may be dynamically adjusted in 25 15 accordance with changing market conditions.

30 In a further variation, the CPO system 100 may score the likelihood of acceptability of each CPO, with different degrees of acceptability triggering different system responses. For example, a buyer who submits a statistically strong offer may receive an instant 35 20 acceptance. In this embodiment, the operator of the CPO system 100 takes the economic risk of guaranteeing that the offer will be accepted by a seller. If the offer is ultimately not accepted by a seller, the CPO system 100 must generally pay the difference between the offer price and the market price in order to complete the transaction. Likewise, statistically weak offers may be (i) 40 25 instantly rejected, (ii) returned for modification by the buyer, so that the modified CPO is more likely to be accepted by a seller, and/or (iii) subsidized by the CPO system 100 in order to make them more likely to be accepted.

45 As previously indicated, the CPO evaluation process 800, shown in FIG. 8, provides each CPO that remains after pre-processing to the appropriate broadcast-based sellers, evaluates each CPO against the appropriate rules of each agency-based seller, and determines 30 40 whether any sellers 130, 140, 150 accept the CPO. As illustrated in FIG. 8, the CPO evaluation process 800 initially transmits the CPO offer signal to broadcast-based sellers and executes the

5 rules evaluation subroutine 900, discussed below in conjunction with FIG. 9, for agency-based sellers during step 810.

10 Since the CPO has been pre-screened, it is expected that at least one acceptance signal is received from one or more sellers during step 820. Thereafter, the CPO evaluation 5 process 800 selects one accepting seller during step 830 and notifies the corresponding seller during step 840. For example, the accepting seller can be selected based upon (i) the priority in 15 which the acceptances are received, (ii) the CPO acceptance rate of each seller, (iii) priorities negotiated by each seller, (iv) the acceptance providing the lowest cost to the buyer, or (v) the highest commission rates paid by the seller to the CPO system 100.

10 The buyer's personal information is provided to the seller during step 845 and the 20 buyer is notified of the acceptance. The offer database 500 is updated during step 850 to indicate that the offer was accepted. A test is then performed during step 860 to determine if the buyer reneges on consummating the transaction. If it is determined during step 860 that the 25 buyer reneges on consummating the transaction, then a penalty is charged to the buyer's designated general-purpose account during step 870, before program control terminates during 30 step 880. It is noted that for a nonbinding CPO the buyer may be charged a penalty for failing to complete the transaction in the event the CPO is accepted, as described. For a binding CPO, 35 however, the CPO is guaranteed by the general purpose account and it is not possible for the buyer to renege. If, however, it is determined during step 860 that the buyer does not renege on 40 consummating the transaction, then program control terminates during step 880.

45 As previously indicated, the CPO evaluation process 800 executes a rules 30 evaluation subroutine 900 during step 810 to determine if one or more agency-based sellers are willing to accept a given CPO. As shown in FIG. 9, the rules evaluation subroutine 900 compares the terms associated with the CPO during step 910 with the corresponding restrictions set forth in any CPO rules defined by any agency-based seller. A test is then performed during 45 step 920 to determine if any CPO rule is satisfied. If it is determined during step 920 that no CPO rule is satisfied, then program control terminates during step 940. If, however, it is determined during step 920 that a CPO rule is satisfied, the corresponding seller is identified during step 930, before program control returns to the CPO evaluation process 800 during step 50 940.

5                   In summary, the present invention identifies unacceptable conditional purchase  
offers and permits a buyer to revise and resubmit the conditional purchase offer to a modified  
10                conditional purchase offer that is more likely to be accepted. Furthermore, buyers can avoid the  
frustration accompanying a delayed rejection or expiration of an unacceptable conditional  
15                purchase offer. Likewise, sellers avoid wasting the resources associated with processing and  
reviewing unacceptable conditional purchase offers.

10                It is to be understood that the embodiments and variations shown and described  
herein are merely illustrative of the principles of this invention and that various modifications  
15                may be implemented by those skilled in the art without departing from the scope and spirit of the  
invention.

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**Claims**

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We claim:

10 1. A method for processing the sale of a product, comprising the steps of:  
5 receiving a conditional purchase offer from a buyer for said product, said  
conditional purchase offer containing at least one buyer-defined condition;

15 determining if said conditional purchase offer satisfies predefined filtering criteria;  
and

20 processing said conditional purchase offer if said determining step determines  
that said conditional purchase offer satisfies said predefined filtering criteria.

10

25 2. The method according to claim 1, further comprising the step of providing a  
rejection to said buyer if said determining step determines that said conditional purchase offer  
does not satisfy said predefined filtering criteria.

20

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15 3. The method according to claim 1, wherein said predefined filtering criteria  
determines if said conditional purchase offer is likely to be accepted by one or more potential  
sellers of said product.

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4. The method according to claim 1, wherein said predefined filtering criteria  
20 determines if said conditional purchase offer provides a predefined margin of profit.

35

5. The method according to claim 1, wherein said processing step comprises the  
step of providing said conditional purchase offer to a plurality of potential sellers of said  
product.

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6. The method according to claim 1, wherein said processing step comprises the  
step of identifying one or more rules from a plurality of potential sellers, each of said rules  
containing one or more seller-defined restrictions.

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5                   7.       The method according to claim 1, wherein said determining step compares said  
conditional purchase offer to historical conditional purchase offer data.

10                 10.      The method according to claim 1, wherein said determining step considers a  
5                    demand forecast.

15                 11.      The method according to claim 1, wherein said determining step compares said  
conditional purchase offer to retail pricing information.

20                 12.      The method according to claim 1, further comprising the step of subsidizing said  
conditional purchase offer if said determining step determines that said conditional purchase  
offer is not likely to be accepted.

25                 13.      The method according to claim 1, wherein said conditional purchase offer further  
15                   includes a payment identifier for specifying an account from which funds may be paid.

30                 14.      The method according to claim 1, further comprising the step of initiating the use  
of said payment identifier if said customer does not complete said sale.

35                 15.      The method according to claim 11, wherein said funds may be paid from a  
25                   general-purpose account.

40                 16.      The method according to claim 13, wherein said general-purpose account is a  
25                   credit card account.

45                 17.      The method according to claim 1, wherein said conditional purchase offer is a  
30                   binding conditional purchase offer.

50                 18.      The method according to claim 1, wherein said conditional purchase offer  
55                   includes a variable condition.

5

17. The method according to claim 1, further comprising the step of preventing said customer from identifying an acceptable seller price.

10

5 18. The method according to claim 17, wherein said step of preventing said customer from identifying said acceptable seller price comprises the step of requiring said buyer to submit a binding conditional purchase offer.

15

10 19. The method according to claim 17, wherein said step of preventing said customer from identifying said acceptable seller price comprises the step of preventing said buyer from submitting multiple substantially similar conditional purchase offers.

20

20. The method according to claim 1, further comprising the step of maintaining the anonymity of said seller until said conditional purchase offer is accepted.

25

15 21. A method for processing the sale of a product, comprising the steps of:  
receiving a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;  
determining if said conditional purchase offer satisfies predefined filtering criteria;  
20 and  
providing said conditional purchase offer to a plurality of potential sellers of said product if said determining step determines that said conditional purchase offer satisfies said predefined filtering criteria.

40

25 22. The method according to claim 21, further comprising the step of receiving from one or more of said sellers an acceptance of said conditional purchase offer.

45

23. The method according to claim 21, further comprising the step of binding said buyer to complete said sale if an acceptance is received for said conditional purchase offer.

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5 24. The method according to claim 21, wherein said predefined filtering criteria determines if said conditional purchase offer is likely to be accepted by one or more of said sellers.

10 5 25. The method according to claim 24, wherein said conditional purchase offer is compared to historical conditional purchase offer data.

15 15 26. The method according to claim 24, wherein said conditional purchase offer is compared to a demand forecast.

10 20 27. The method according to claim 24, wherein said conditional purchase offer is compared to retail pricing information.

25 15 28. The method according to claim 21, wherein said predefined filtering criteria determines if said conditional purchase offer provides a predefined margin of profit.

30 30 29. The method according to claim 1, wherein said conditional purchase offer further includes a payment identifier for specifying an account from which funds may be paid.

35 20 30. A method for processing the sale of a product, comprising the steps of:  
receiving a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;

determining if said conditional purchase offer is likely to be accepted by one or more potential sellers of said product; and

40 25 45 25 providing said conditional purchase offer to a plurality of potential sellers of said product if said determining step determines that said conditional purchase offer is likely to be accepted.

45 30 31. The method according to claim 30, further comprising the step of receiving from one or more of said sellers an acceptance of said conditional purchase offer.

5

32. The method according to claim 30, further comprising the step of binding said buyer to complete said sale if an acceptance is received for said conditional purchase offer.

10

5 33. The method according to claim 30, wherein said determining step compares said conditional purchase offer to historical conditional purchase offer data.

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34. The method according to claim 30, wherein said determining step considers a demand forecast.

10

20

35. The method according to claim 30, wherein said determining step compares said conditional purchase offer to retail pricing information.

25

36. A method for processing the sale of a product, comprising the steps of:

15 receiving a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;

determining if said conditional purchase offer satisfies predefined filtering criteria; and

30

identifying one or more rules from a plurality of potential sellers, each of said 20 rules containing one or more seller-defined restrictions if said determining step determines that said conditional purchase offer satisfies said predefined filtering criteria.

35

37. The method according to claim 36, further comprising the step of binding said buyer to complete said sale if said buyer-defined condition satisfies each of said seller-defined 25 restrictions of at least one of said rules.

45

38. The method according to claim 36, wherein said predefined filtering criteria determines if said conditional purchase offer is likely to be accepted by one or more of said sellers.

30

5 39. The method according to claim 38, wherein said conditional purchase offer is compared to historical conditional purchase offer data.

10 40. The method according to claim 38, wherein said conditional purchase offer is 5 compared to a demand forecast.

15 41. The method according to claim 38, wherein said conditional purchase offer is compared to retail pricing information.

20 10 42. The method according to claim 36, wherein said predefined filtering criteria determines if said conditional purchase offer provides a predefined margin of profit.

25 15 43. The method according to claim 36, wherein said conditional purchase offer further includes a payment identifier for specifying an account from which funds may be paid.

30 30 44. A method for processing the sale of a product, comprising the steps of: receiving a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;

20 determining if said conditional purchase offer is likely to be accepted by one or more potential sellers of said product; and

35 45. identifying one or more rules from a plurality of potential sellers, each of said rules containing one or more seller-defined restrictions if said determining step determines that said conditional purchase offer is likely to be accepted.

40 40 46. The method according to claim 44, further comprising the step of binding said buyer to complete said sale if said buyer-defined condition satisfies each of said seller-defined restrictions of at least one of said rules.

45 45 47. The method according to claim 44, wherein said determining step compares said 30 conditional purchase offer to historical conditional purchase offer data.

5

47. The method according to claim 44, wherein said determining step considers a demand forecast.

10

5 48. The method according to claim 44, wherein said determining step compares said conditional purchase offer to retail pricing information.

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49. A system for processing the sale of a product, comprising:  
input means for receiving a conditional purchase offer from a buyer for said  
10 product, said conditional purchase offer containing at least one buyer-defined condition;  
a processor operatively coupled to said input means, said processor configured  
20 to:  
determine if said conditional purchase offer satisfies predefined filtering criteria;  
and  
25 process said conditional purchase offer if said determining step determines that  
said conditional purchase offer satisfies said predefined filtering criteria.

30

50. An article of manufacture comprising:  
a computer readable medium having computer readable code means embodied  
20 thereon, said computer readable program code means comprising:  
a step to receive a conditional purchase offer from a buyer for said product, said  
conditional purchase offer containing at least one buyer-defined condition;  
a step to determine if said conditional purchase offer satisfies predefined filtering  
35 criteria; and  
25 a step to process said conditional purchase offer if said determining step  
determines that said conditional purchase offer satisfies said predefined filtering criteria.

45

51. A system for processing the sale of a product, comprising:  
input means for receiving a conditional purchase offer from a buyer for said  
30 product, said conditional purchase offer containing at least one buyer-defined condition;

50

5 a processor operatively coupled to said input means, said processor configured  
to:

10 determine if said conditional purchase offer satisfies predefined filtering criteria;  
and

15 5 provide said conditional purchase offer to a plurality of potential sellers of said  
product if said determining step determines that said conditional purchase offer satisfies said  
predefined filtering criteria.

15 52. An article of manufacture comprising:

20 10 a computer readable medium having computer readable code means embodied  
thereon, said computer readable program code means comprising:

25 20 a step to receive a conditional purchase offer from a buyer for said product, said  
conditional purchase offer containing at least one buyer-defined condition;

30 15 a step to determine if said conditional purchase offer satisfies predefined filtering  
criteria; and

35 30 a step to provide said conditional purchase offer to a plurality of potential sellers  
of said product if said determining step determines that said conditional purchase offer satisfies  
said predefined filtering criteria.

40 20 53. A system for processing the sale of a product, comprising:

45 35 input means for receiving a conditional purchase offer from a buyer for said  
product, said conditional purchase offer containing at least one buyer-defined condition;

30 25 a processor operatively coupled to said input means, said processor configured  
to:

40 40 determine if said conditional purchase offer is likely to be accepted by one or  
more potential sellers of said product; and

45 45 provide said conditional purchase offer to a plurality of potential sellers of said  
product if said determining step determines that said conditional purchase offer is likely to be  
accepted.

5 54. An article of manufacture comprising:  
a computer readable medium having computer readable code means embodied  
thereon, said computer readable program code means comprising:  
10 a step to receive a conditional purchase offer from a buyer for said product, said  
conditional purchase offer containing at least one buyer-defined condition;  
15 a step to determine if said conditional purchase offer is likely to be accepted by  
one or more potential sellers of said product; and  
20 a step to provide said conditional purchase offer to a plurality of potential sellers  
of said product if said determining step determines that said conditional purchase offer is likely  
10 to be accepted.

25 55. A system for processing the sale of a product, comprising:  
input means for receiving a conditional purchase offer from a buyer for said  
product, said conditional purchase offer containing at least one buyer-defined condition;  
30 15 a processor operatively coupled to said input means, said processor configured  
to:  
determine if said conditional purchase offer satisfies predefined filtering criteria;  
and  
35 identify one or more rules from a plurality of potential sellers, each of said rules  
20 containing one or more seller-defined restrictions if said determining step determines that said  
conditional purchase offer satisfies said predefined filtering criteria.

40 56. An article of manufacture comprising:  
a computer readable medium having computer readable code means embodied  
25 thereon, said computer readable program code means comprising:  
a step to receive a conditional purchase offer from a buyer for said product, said  
conditional purchase offer containing at least one buyer-defined condition;  
45 a step to determine if said conditional purchase offer satisfies predefined filtering  
criteria; and

5 a step to identify one or more rules from a plurality of potential sellers, each of said rules containing one or more seller-defined restrictions if said determining step determines that said conditional purchase offer satisfies said predefined filtering criteria.

10 5 57. A system for processing the sale of a product, comprising:  
15 input means for receiving a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;  
10 a processor operatively coupled to said input means, said processor configured to:  
20 determine if said conditional purchase offer is likely to be accepted by one or more potential sellers of said product; and  
identify one or more rules from a plurality of potential sellers, each of said rules containing one or more seller-defined restrictions if said determining step determines that said conditional purchase offer is likely to be accepted.

25 15 58. An article of manufacture comprising:  
30 a computer readable medium having computer readable code means embodied thereon, said computer readable program code means comprising:  
20 a step to receive a conditional purchase offer from a buyer for said product, said conditional purchase offer containing at least one buyer-defined condition;  
35 a step to determine if said conditional purchase offer is likely to be accepted by one or more potential sellers of said product; and  
40 a step to identify one or more rules from a plurality of potential sellers, each of said rules containing one or more seller-defined restrictions if said determining step determines that said conditional purchase offer is likely to be accepted.

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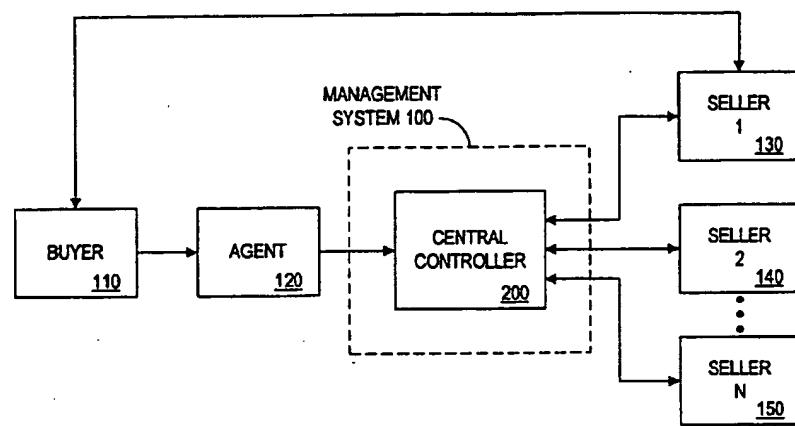


FIG. 1

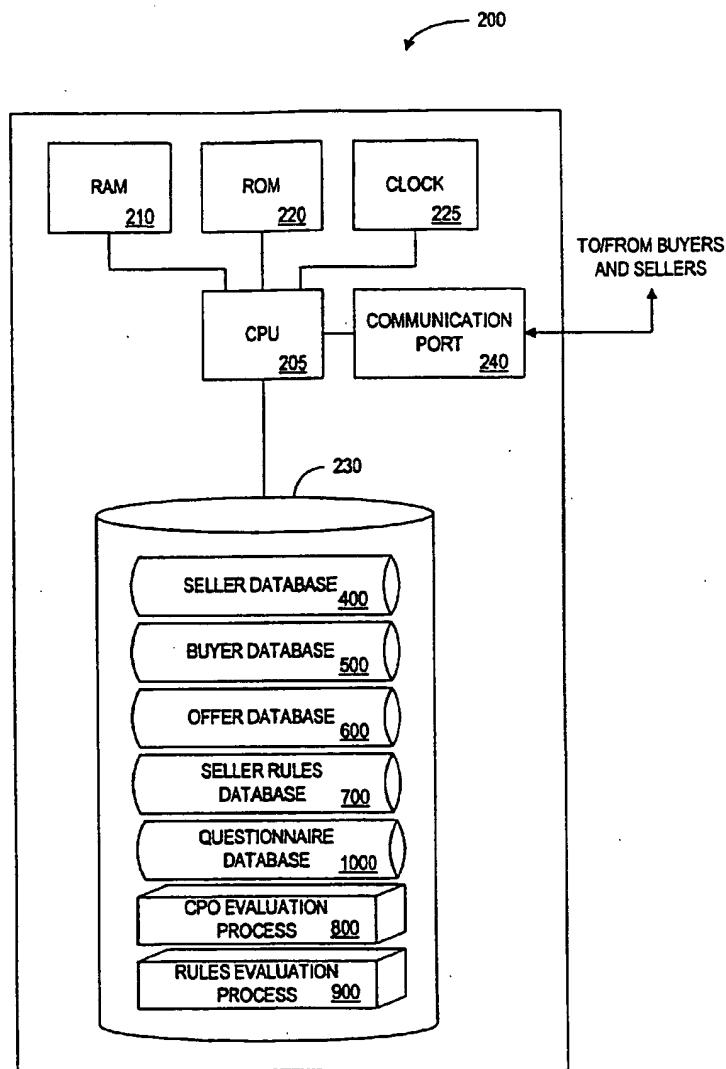


FIG. 2

300

	SELLER ID NUMBER <u>340</u>	SELLER NAME <u>350</u>	CPO TRACKING NUMBER <u>360</u>	SELLER ACCOUNT NUMBER <u>370</u>
305	S67676	AMERICAN AIRLINES	627	7199987
310	S89898	DELTA AIRLINES	-	5567891
315	S45454	AT&T	852	79257431
320	S42929	HERTZ	-	3299467
325	S81818	SHERATON	627	1234567
330	S47474	HILTON	-	774368

FIG. 3

400

	BUYER NUMBER	NAME	ADDRESS	CREDIT CARD ACCOUNT NUMBER	CPO NUMBER(S)
405	420	430	440	450	460
410	B2222	JOHN SMITH	3 MAIN ST.	2222-2222- 2222-2222	345
415	B2223	SUE JOHNSON	4 PINE ST.	3333-3333- 3333-3333	333
	B2224	DAVE McCARTHY	6 TEMPLE ST.	4444-4444- 4444-4444	627

FIG. 4

500

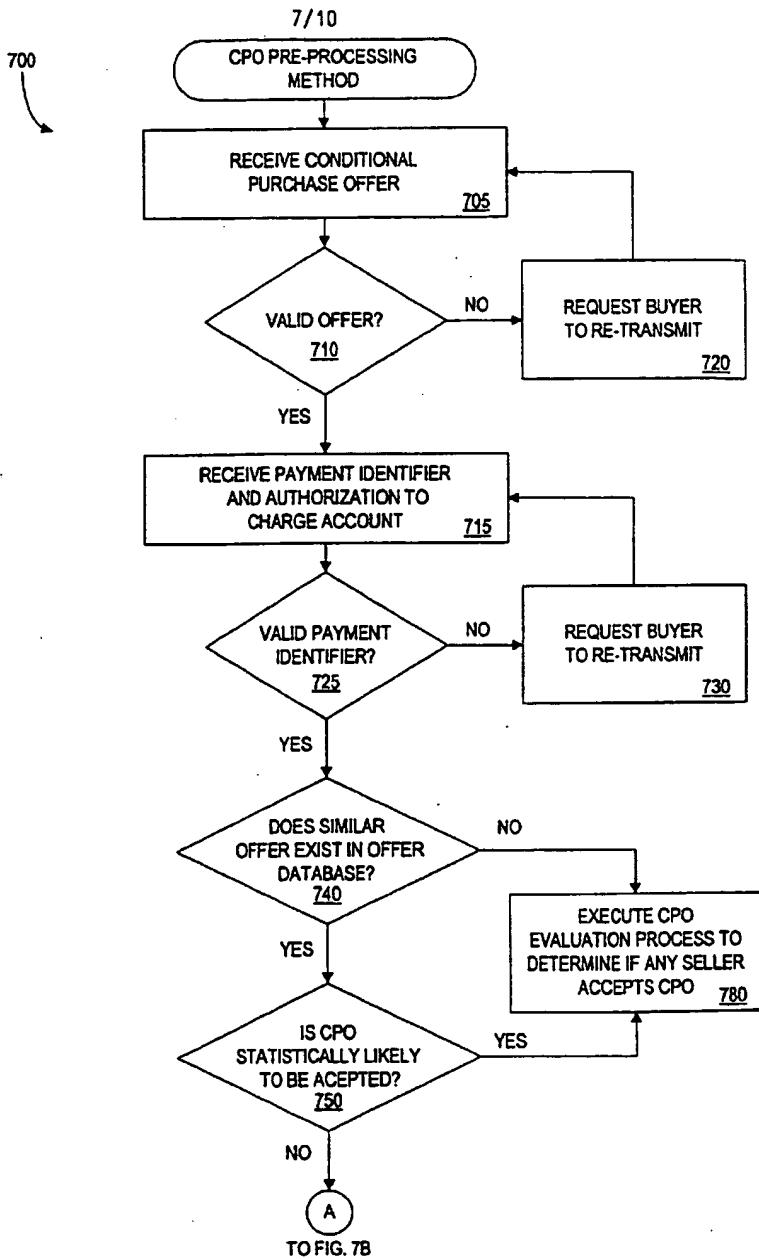
CPO NUMBER	BUYER ID NUMBER	SUBJECT	CONDITIONS	CPO PRICE	STATUS
505	540	545	550	555	575
510	852	B22225	HOTEL ROOM 8/1/97 - 8/3/97	\$180.00	ACCEPTED
515	874	B22226	AIRLINE TICKET RT LAX - JFK LEAVE 9/1/97. RETURN 9/17/97	\$250.00	ACTIVE
520	627	B22224	AIRLINE TICKET RT JFK - LAX LEAVE 8/1/97. RETURN 8/7/97	\$200.00	REJECTED
525	345	B22222	CAR RENTAL NEW YORK MID-SIZE CAR 8/14/97 - 8/17/97	\$100.00	ACTIVE
	333	B22223	AIRLINE TICKET RT EWR - ORL LEAVE 8/14/97. RETURN 8/21/97	\$150.00	ACTIVE

FIG. 5

600

RULE NUMBER 640	SELLER ID NUMBER 645	REQUIRED CPO CONDITION(S) 650	MINIMUM PRICE 655
4572	S47474	WEEKEND CAR RENTAL, NEW YORK, NY, 10/1/98 - 12/31/98	\$225.00
5555	S81818	WEEKEND HOTEL, BOSTON, MA, 10/1/98 - 12/31/98	\$99.00/NIGHT DOUBLE OCCUPANCY
6523	S89898	ROUND TRIP AIR TRAVEL TO LOS ANGELES, CA, 1/5/99 - 2/22/99; SAT. NIGHT STAY REQUIRED	\$199.00 PER PERSON

FIG. 6



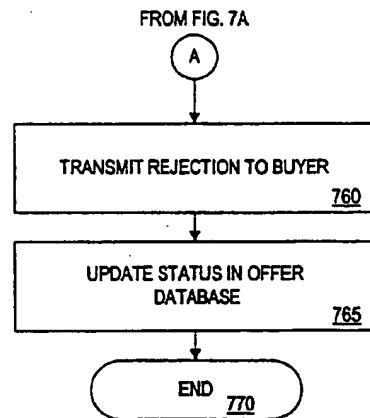


FIG. 7B

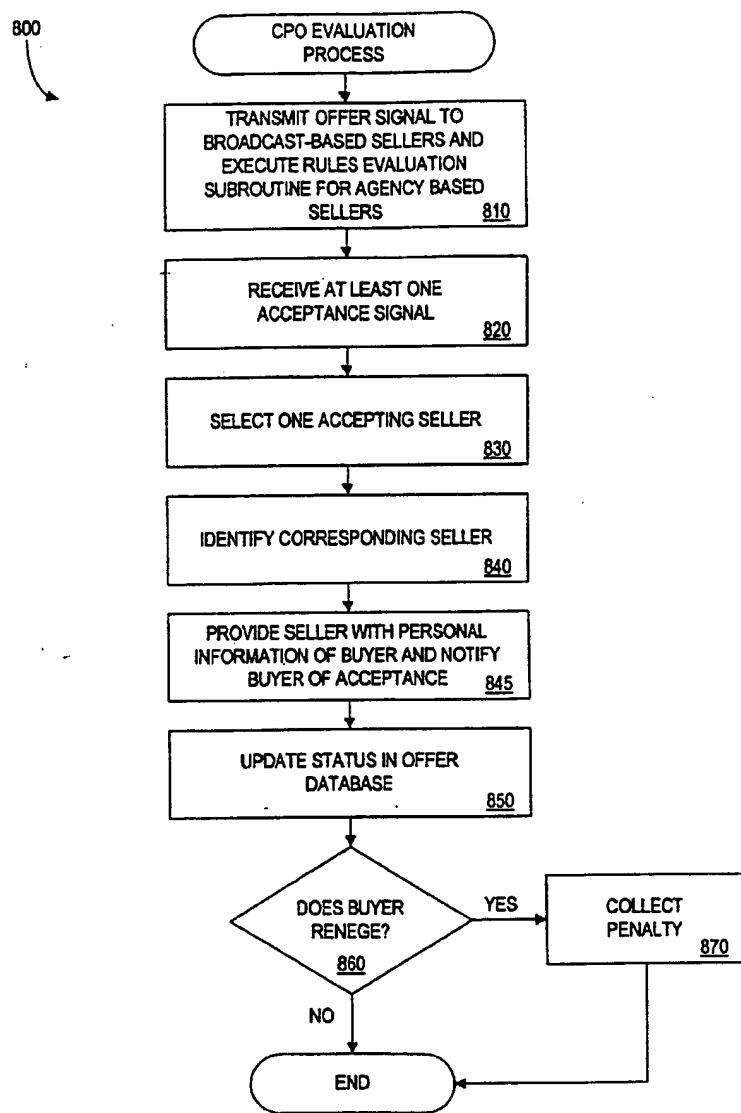


FIG. 8

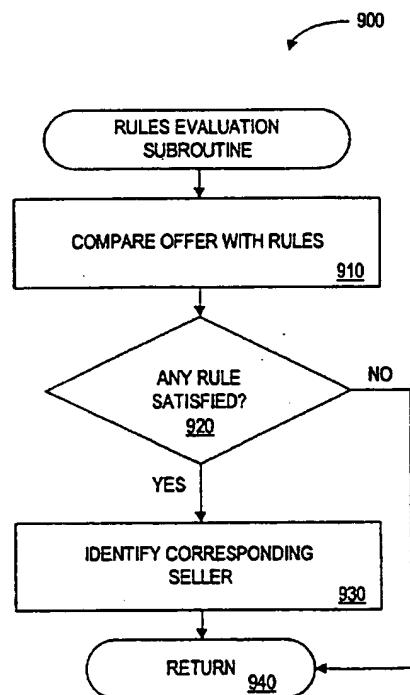


FIG. 9

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/28579

A. CLASSIFICATION OF SUBJECT MATTER		
IPC(6) :G06F 15/26 US CL :705/5.26 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 705/5,26,1,13,15,27,37,35,38: 209/226,228,236,237,239: 340/825.3		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) West, DIALOG search terms: conditional purchase offer, online shopping, rules, filtering, criteria		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,331,546 A (WEBBER et al) 19 JULY 1994, col. 1 lines 45-55, col. 2 lines 5-15 and 43-50, col. 4 lines 10-50, col. 5 lines 21-35 and 56-65, col. 7 lines 5-15 and 53-60.	1-58
X	US 5,794,207 A (WALKER et al) 11 AUGUST 1998, Figure 1 and col. 16-27	1-58
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
*A* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "B" earlier document published on or after the international filing date "C" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "D" document referring to an oral disclosure, use, exhibition or other means "E" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "A" document member of the same patent family
Date of the actual completion of the international search 27 JANUARY 2000		Date of mailing of the international search report 16 FEB 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer ALLEN MACDONALD <i>For Raymung Zoyer</i> Telephone No. (703) 305-9708

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/28579

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,826,244 A (HUBERMAN) 20 OCTOBER 1998, ALL	1-58
A	US 5,136,501 A (SILVERMAN et al) 04 AUGUST 1992, ALL	1-58